NOTE ON COMET *c* 1913 (NEUJMIN).

This object was apparently discovered by M. NEUJMIN at the Pulkowa Observatory on the night of September 5, 1913, but the first announcement of its discovery came to the Lick Observatory in the form of a telegram giving an observation by GRAFF, at Bergedorf, Hamburg, on September 6th.

The first observation was secured here on Monday night, September 8th. In the moonlight, the object showed very little resemblance to the ordinary comet. It had the appearance of a star of magnitude 11 or 11½, with no more than the merest suspicion of nebulosity. Indeed, it was only detected by its motion. On later nights, as the Moon grew brighter, no trace of nebulosity could be detected either with the 12-inch or with the 36-inch telescope. Last night, however, September 22d, when examined with the 36-inch against a dark-sky background, a faint brushy nebulous extension, like a short tail, was seen to extend three or four minutes of arc toward the southeast from the nucleus, in about 145° position-angle. The light of the head was practically entirely concentrated into the very sharp stellar nucleus of about 11.5 magnitude. At moments this nucleus seemed to be surrounded with an exceedingly feeble nebulosity, perhaps half a minute of arc in diameter.

This comet thus contrasts very strongly in appearance with the one discovered by METCALF on September 1st. METCALF'S comet is a round, condensed nebulous object, which, except that it is fainter, strongly resembles the appearance of the globular star cluster in *Hercules,* as seen with a small telescope.

From observations on September 6th, 7th and 8th, EINARSSON and NICHOLSON, at the Students' Observatory, Berkeley, computed an orbit for NEUJMIN'S comet, by LEUSCHNER'S short method. Even on the basis of this short observed arc, it was found that the orbit was elliptic, a parabola leaving residuals far too large to be due to errors of observation. Repeating the computation on the basis of a seven-day arc (observations of September 6th, 9th and 13th), the same computers find that the orbit is an ellipse with a period of 25½ years. The comet has already passed the points of closest approach to both Sun and Earth, and is now about 61,000,000 miles dis-

tant from the latter. It is in the constellation *Pisces* and will move north and west into *Pegasus.* R. G. AITKEN.

September 23, 1913.

CROSSLEY REFLECTOR IMPROVEMENTS.

The original Crossley mounting and dome provided for the observer's position at the eye end of the telescope by means of an elevating platform raised and lowered by hand. Due to certain deficiencies in construction, this elevating platform was found inconvenient in actual use, and it was necessary to discard it at the time the new mounting for the telescope was installed, using instead of a pair of ladders in connection with two sliding platforms resting upon an elevated floor. The use of this system has been found to entail great strain and inconvenience on the part of the observer, particularly in long exposures; in many positions of the telescope, especially for objects north of the zenith, the close and exacting work of guiding is carried out only at the cost of great strain and fatigue on the part of the observer. To render the instrument more efficient and easier in use a number of improvements have been designed, which are now being installed. These improvements comprise:—

An elevating platform, four by ten feet in size, raised and lowered by a one-half horse-power electric motor, so as to give the observer convenient access to the guiding eye-piece in any position of the telescope. This platform is carried on a strong iron framework, which is attached to the dome and revolves with it; on the platform will be carried the controllers for the motors which rotate the dome and elevate the platform.

The slow motion in right ascension is at present controlled by an endless cord; for this there will be substituted a small electric motor, with a switch at the eye end.

The hand clamps in right ascension will be supplanted by electric clamps, controlled from the eye end of the telescope.

The driving system of the Crossley is rather unique, in that it consists of two sectors of about eight feet radius; one of these is reversing while the other is driving, and this has in the past necessitated that the observer leave his guiding twice each hour, once to stop the reversing sector at the end of its travel, and once to change from one sector to the other by